This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Previously Presented) A computer implemented method for allowing communication among processing nodes in a system, comprising:

receiving, in a source node, a request from a source object executing in the source node to send a message to a destination object executing in a destination node, wherein each node includes a processor capable of multitasking multiple program objects and a communication interface to transmit and receive data with the other nodes;

determining, in the source node, whether the destination node and source node are a same node;

invoking an operating system command in the source node to transmit the message to the destination object within the source node if the destination node is the source node; and

if the destination node is not the source node, performing:

(i) transmitting, with the source node, the message to the destination node through the communication interface; and

(ii) invoking an operating system command in the destination node to transmit the message to the destination object within the destination node.

2. (Previously Presented) The method of claim 1, wherein there is a message queue associated with each object in each node, and wherein the invoked operating system command in the source node transmits the message to the message queue associated with the destination object.

3. (Original) The method of claim 1, wherein transmitting, with the source node, the message to the destination node over the communication interface, comprises:

determining, in the source node, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, in the source node, at least one message packet including the message, the determined address, and an address of the destination object; and

transmitting, with the source node, the at least one message packet to the destination node over the communication interface.

4. (Original) The method of claim 3, wherein the communication interface comprises a bus and wherein including the address of the destination node in the message causes the destination node to read the at least one message packet transmitted on the bus.

5. (Currently Amended) The method of claim 2, wherein sending the message to the destination object in the destination node comprises:

determining, in the destination node, the destination object for [[the]] at least one message packet including the message;

extracting, in the destination node, the message from the message packet, wherein the invoked operating system command in the destination node transmits the message to the message queue associated with the destination object.

6. (Previously Presented) The method of claim 1, wherein transmitting, with the source node, the message to the destination node comprises:

invoking an operating system command, with the source object, to send the message to a message queue associated with a source network object in the source node;

determining, with the source network object, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, with the source network object, at least one message packet including the message, the determined address of the destination node, and an address of the destination object;

transmitting, with the source network object, the at least one message packet to the destination node over the communication interface; and

receiving, with a destination network object, the at least one message packet, wherein the destination network object invokes the operating system command in the destination node to transmit the message to a message queue associated with the destination object in the destination node.

7. (Previously Presented) The method of claim 6, wherein routing the message, with the destination network object in the destination node, to the destination object comprises:

determining the destination object for the at least one message packet;

extracting the message from the message packet, wherein the operating system command is invoked to transmit the message to the message queue associated with the destination object.

8. (Original) The method of claim 1, wherein each node is associated with one component of a system, wherein a first node comprises a controller node and at least one second node comprises a component node that controls an electro-mechanical component of the system, wherein the source object comprises a work management object in the controller node that manages system commands and the message includes a command to instruct a motion object in the component node to control the electro-mechanical component to perform an operation.

9. (Original) The method of claim 8, wherein a communication node is capable of receiving commands from a host system to control the electro-mechanical component of the system, further comprising:

receiving, with a host communication object executing in the communication node, a command from a host system to instruct the motion object to control the electro-mechanical component of the system;

generating, with the host communication object, a message including the command to send to the work management object; and

transmitting, with communication node, the message to the controller node to route to the work management object.

10. (Original) The method of claim 8, wherein the system comprises a storage library system, and the electro-mechanical component comprises a component of a storage library system.

11. (Original) The method of claim 1, wherein each object is assigned a unique object identifier in the system, and wherein the unique identifier is used within all nodes to identify the destination object to receive the message.

12. (Original) The method of claim 11, wherein each node is assigned a unique node identifier used within all nodes to identify the destination node to receive the message.

13. (Original) The method of claim 12, wherein a function call receives the request from the source object to send the message to the destination object, determines whether the destination node is the same node, sends the message to the destination object or causes the transmittal of the message to the destination node over the communication interface, and maintains the object and node identifier assignment, further comprising:

updating the node and object identifier used by each function call in each node to reflect a modification to the arrangement of nodes or objects in the system.

14. (Original) The method of claim 1, wherein each node transmits signals to determine an availability of other nodes on the communication interface.

15. (Previously Presented) A system for allowing communication among processing nodes in a system, comprising:

at least two nodes, wherein each node includes a processor capable of multitasking multiple program objects;

a communication interface to transmit and receive data between the nodes;

source program logic implemented in the nodes, wherein the node executing the source logic comprises a source node, wherein the source program logic causes the source node processor to perform:

(i) receiving a request from a source object executing in the source node to send a message to a destination object executing in a destination node,

(ii) determining whether the destination node and source node are a same node;

(iii) invoking an operating system command to transmit the message to the destination object within the source node if the destination node is the source node; and

(iv) transmitting the message to the destination node through the communication interface if the destination node is not the source node; and

destination program logic implemented in the nodes, wherein the node executing the destination logic comprises a destination node, wherein the destination program logic causes the

destination node processor to invoke an operating system command to transmit the message received from the source node to the destination object within the destination node.

16. (Previously Presented) The system of claim 15, wherein there is a message queue associated with each object in each node, and wherein the invoked operating system command transmits the message to the message queue associated with the destination object.

17. (Original) The system of claim 15, wherein the source program logic node transmits the message to the destination node over the communication interface by:

determining an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating at least one message packet including the message, the determined address, and an address of the destination object; and

transmitting the at least one message packet to the destination node over the communication interface.

18. (Original) The system of claim 17, wherein the communication interface comprises a bus and wherein including the address of the destination node in the message causes the destination node to read the at least one message packet transmitted on the bus.

19. (Currently Amended) The system of claim 16, wherein the destination program logic for sending the message to the destination object in the destination node comprises:

determining the destination object for [[the]] at least one message packet <u>including the message</u>;

extracting the message from the message packet wherein the invoked operating system command

transmits the message to the message queue associated with the destination object.

20. (Previously Presented) The system of claim 15, wherein the source program logic includes a source network object to transmit the message to the destination node by:

invoking an operating system command, with the source object, to send the message to a message queue associated with the source network object in the source node;

determining, with the source network object, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, with the source network object, at least one message packet including the message, the determined address of the destination node, and an address of the destination object;

transmitting, with the source network object, the at least one message packet to the destination node over the communication interface; and

wherein the destination program logic includes a destination network object that receives, the at least one message packet, wherein the destination network object invokes the operating system command to transmit the message to a message queue associated with the destination object in the destination node.

21. (Previously Presented) The system of claim 20, wherein the destination network object routes the message in the destination node to the destination object by:

determining the destination object for the at least one message packet;

extracting the message from the message packet wherein the operating system command is invoked to transmit the message to message queue associated with the destination object.

22. (Original) The system of claim 15, wherein each node is associated with one component of a system, wherein a first node comprises a controller node and at least one second node comprises a component node that controls an electro-mechanical component of the system, wherein the source object comprises a work management object in the controller node that manages system commands and the message includes a command to instruct a motion object in the component node to control the electro-mechanical component to perform an operation.

23. (Previously Presented) The system of claim 22, further comprising:

a communication node capable of receiving commands from a host system to control the electro-mechanical component of the system, wherein the communication node includes a host communication object executing in the communication node performing:

receiving a command from a host system to instruct the motion object to control the electro-mechanical component of the system;

generating a message including the command to send to the work management object; and

transmitting the message to the controller node to route to the work management object.

24. (Previously Presented) The system of claim 22, wherein the system comprises a storage library system, and the electro-mechanical component comprises a component of a storage library system.

25. (Previously Presented) The system of claim 15, wherein each object is assigned a unique object identifier in the system, and wherein the unique identifier is used within all nodes to identify the destination object to receive the message.

26. (Previously Presented) The system of claim 25, wherein each node is assigned a unique node identifier used within all nodes to identify the destination node to receive the message.

27. (Previously Presented) The system of claim 26, wherein the source and destination program logic includes a function call that receives the request from the source object to send the message to the destination object, determines whether the destination node is the same node, sends the message to the destination object or causes the transmittal of the message to the destination node over the communication interface, and maintains the object and node identifier assignment, wherein the nodes further include program logic performing:

updating the node and object identifier used by each function call in each node to reflect a modification to the arrangement of nodes or objects in the system.

28. (Previously Presented) The system of claim 15, wherein each node transmits signals to determine an availability of other nodes on the communication interface.

29. (Previously Presented) An article of manufacture for allowing communication among processing nodes in a system, wherein each node includes a processor, wherein a communication interface enables communication between the nodes, wherein the article of manufacture includes program logic for controlling the node processor operations, comprising:

source program logic implemented in the nodes, wherein the node executing the source logic comprises a source node, wherein the source program logic causes the source node processor to perform:

(i) receiving a request from a source object executing in the source node to send a message to a destination object executing in a destination node,

(ii) determining whether the destination node and source node are a same node;

(iii) invoking an operating system command to transmit the message to the destination object within the source node if the destination node is the source node; and

(iv) transmitting the message to the destination node through the communication interface if the destination node is not the source node; and

destination program logic implemented in the nodes, wherein the node executing the destination logic comprises a destination node, wherein the destination program logic causes the destination node processor to invoke an operating system command to transmit the message received from the source node to the destination object within the destination node.

30. (Previously Presented) The article of manufacture of claim 29, wherein there is a message queue associated with each object in each node, and wherein the invoked operating system command transmits the message to the message queue associated with the destination object.

31. (Previously Presented) The article of manufacture of claim 29, wherein the source program logic node transmits the message to the destination node over the communication interface by:

determining an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating at least one message packet including the message, the determined address, and an address of the destination object; and

transmitting the at least one message packet to the destination node over the communication interface.

32. (Previously Presented) The article of manufacture of claim 31, wherein the communication interface comprises a bus and wherein including the address of the destination node in the message causes the destination node to read the at least one message packet transmitted on the bus.

33. (Currently Amended) The article of manufacture of claim 29, wherein the destination program logic for sending the message to the destination object in the destination node comprises:

determining the destination object for [[the]] at least one message packet including the message;

extracting the message from the message packet, wherein the invoked operating system command transmits

the message queue associated with the destination object.

34. (Previously Presented) The article of manufacture of claim 29, wherein the source program logic includes an a source network object to transmit the message to the destination node by:

invoking an operating system command, with the source object, to send the message to a message queue associated with the source network object in the source node;

determining, with the source network object, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, with the source network object, at least one message packet including the message, the determined address of the destination node, and an address of the destination object;

transmitting, with the source network object, the at least one message packet to the destination node over the communication interface; and

wherein the destination program logic includes a destination network object that receives, the at least one message packet, wherein the destination network object invokes the operating

system command to transmit the message to a message queue associated with the destination object in the destination node.

35. (Previously Presented) The article of manufacture of claim 34, wherein the destination network object routes the message in the destination node to the destination object by:

determining the destination object for the at least one message packet;

extracting the message from the message packet wherein the operating system command is invoked to transmit the message to a message queue associated with the destination object.

36. (Previously Presented) The article of manufacture of claim 29, wherein each node is associated with one component of a system, wherein a first node comprises a controller node and at least one second node comprises a component node that controls an electro-mechanical component of the system, wherein the source object comprises a work management object in the controller node that manages system commands and the message includes a command to instruct a motion object in the component node to control the electro-mechanical component to perform an operation.

37. (Currently Amended) The article of manufacture of claim [[29]] 36, wherein a communication node receives commands from a host system to control the electro-mechanical component of the system, wherein the communication node includes a host communication object executing in the communication node performing:

receiving a command from a host system to instruct the motion object to control the electro-mechanical component of the system;

generating a message including the command to send to the work management object; and

transmitting the message to the controller node to route to the work management object.

38. (Previously Presented) The article of manufacture of claim 36, wherein the system comprises a storage library system, and the electro-mechanical component comprises a component of a storage library system.

39. (Previously Presented) The article of manufacture of claim 29, wherein each object is assigned a unique object identifier in the system, and wherein the unique identifier is used within all nodes to identify the destination object to receive the message.

40. (Previously Presented) The article of manufacture of claim 39, wherein each node is assigned a unique node identifier used within all nodes to identify the destination node to receive the message.

41. (Previously Amended) The article of manufacture of claim 40, wherein the source and destination program logic includes a function call that receives the request from the source object to send the message to the destination object, determines whether the destination node is the same node, sends the message to the destination object or causes the transmittal of the message to the destination node over the communication interface, and maintains the object and node identifier assignment, wherein the nodes further include program logic performing:

updating the node and object identifier used by each function call in each node to reflect a modification to the arrangement of nodes or objects in the system.

42. (Previously Presented) The article of manufacture of claim 29, wherein each node transmits signals to determine an availability of other nodes on the communication interface.

43. (New) The method of claim 1, wherein the operating system command invoked to transmit the message to the destination object if the destination node is the source node and if the destination node is not the source node comprises a same operating system function.

44. (New) The method of claim 43, further comprising: wherein the operating system command invoked in the source node in response to determining that the destination node and the source node are the same queues the message in a message queue of the destination object, further comprising:

invoking the operating system command in the source node to queue the message in a communication interface object queue in response to determining that the destination node is not

the source node, wherein a communication interface object transmits the message from the communication interface object queue to the destination node.

45. (New) The system of claim 15, wherein the operating system command invoked to transmit the message to the destination object if the destination node is the source node and if the destination node is not the source node comprises a same operating system function.

46. (New) The method of claim 45, wherein the operating system command invoked in the source node in response to determining that the destination node and the source node are the same queues the message in a message queue of the destination object, wherein the source program logic further performs:

invoking the operating system command in the source node to queue the message in a communication interface object queue in response to determining that the destination node is not the source node, wherein a communication interface object transmits the message from the communication interface object queue to the destination node.

47. (New) The article of manufacture of claim 29, wherein the operating system command invoked to transmit the message to the destination object if the destination node is the source node and if the destination node is not the source node comprises a same operating system function.

48. (New) The article of manufacture of claim 47 wherein the operating system command invoked in the source node in response to determining that the destination node and the source node are the same queues the message in a message queue of the destination object, wherein the source program logic further performs:

invoking the operating system command in the source node to queue the message in a communication interface object queue in response to determining that the destination node is not the source node, wherein a communication interface object transmits the message from the communication interface object queue to the destination node.